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SPECIFICATION FOR HAND SHANK LADLES

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SPECIFICATION FOR HAND SHANK LADLES

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Indian Standard

SPECIFICATION FOR
HAND SHANK LADLES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 27 October 1980, after the draft finalized by the Foundry Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Hand shank ladles are very commonly used in small ferrous and non-ferrous foundries for pouring molten metal into moulds. These are handled by two men at a time. This standard has, therefore, been prepared to help the small foundries in selection of proper size of ladle.

0.3 In selecting the capacities of hand shank ladles the main considerations are: (a) limiting mass that can be carried by two men without undue fatigue; and (b) keeping the number of sizes as low as possible and yet to cover most of the usually handled masses of metal.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements of hand shank ladles suitable for use in foundries.

2. CAPACITIES AND DIMENSIONS

2.1 Hand shank ladle shall have dimensions specified in Table 1 read with Fig. 1 and 2. The size number of the ladle indicates its holding capacity in terms of one kilogram of copper per number. For example, No. 15 ladle has a holding capacity of 15 kg of copper.

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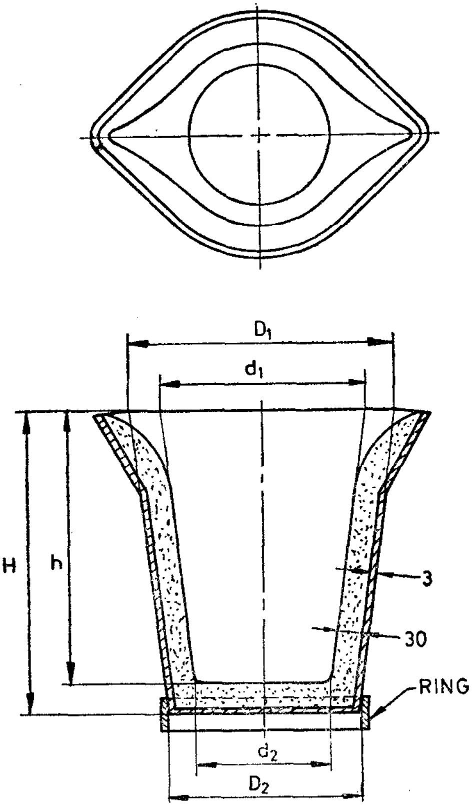
*Rules for rounding off numerical values (*revised*).

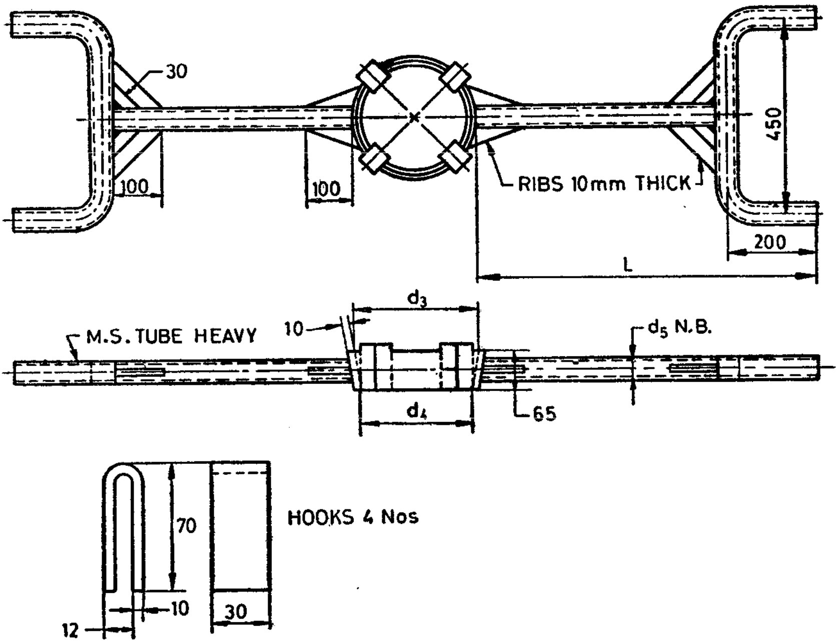
2.1.1 Typical hand ladle and shank design is given in Fig. 1 and 2. The illustrations given are not intended to restrict the design.



All dimensions in millimetres.

FIG. 1 CONSTRUCTIONAL DETAILS OF HAND LADLE

2.2 The dimensions of pouring lips shall be 1/5 of the diameter in width and 1/5 of the height in depth and shall have 45° angle for proper flow of the metal.



All dimensions in millimetres.

Fig. 2 Constructional Details of Shank and Hooks

TABLE 1 STANDARD SIZES OF HAND LADLE AND SHANKS

(*Clause* 2.1)

(All dimensions in millimetres)

Size	External Dimension			Internal Dimension			Shank Dimension				Remarks
	D_1	D_2	H	d_1	d_2	h	d_3	d_4	d_5	L	
15	210	170	240	145	110	207	210	200	20	750	With hooks
25	230	185	270	165	125	237	210	200	20	750	—
35	260	210	300	195	150	254	254	244	25	1 050	With hooks
50	280	225	330	215	165	284	254	244	25	1 050	—

Note — If required, other sizes may be agreed upon between the purchaser and the manufacturer.

3. MATERIAL

3.1 Unless otherwise specified, the material specified in this standard shall comply with the following requirements:

Material	*Specification*
i) Structural Steel	IS : 226-1975*, IS : 1977-1975†
ii) Mild Steel Tube	IS : 1239 (Part I)-1979‡

4. BODY

4.1 The ladle body shall be of mild steel plate conforming to IS : 226-1975* and fabricated by welding.

4.1.1 The welding shall be carried out in accordance with IS : 823-1964§.

4.2 Capacities designated in Table 1 are based on 30 mm thickness of the refractory lining; however, it may be adjusted to suit the specific molten metal requirements.

4.3 Pouring spouts shall also be provided with refractory lining.

4.4 Steel rings rolled out of 25 × 6 mm flat bars conforming to IS : 226-1975* shall be provided in the bottom of the ladle so that it could rest smoothly on the ground.

5. SHANK

5.1 The shank shall be fabricated by welding from mild steel flats and mild steel tubes.

5.2 One shank for two ladle sizes has been specified. When the smaller of the two ladle sizes is to be used, four U-shaped hooks shall be inserted as shown in Fig. 2.

6. HOOKS

6.1 The hooks shall be of mild steel and may be formed by hot bending.

7. MARKING

7.1 Each hand shank ladle shall be clearly marked with the manufacturers' name or trade mark and the capacity of the ladle.

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*Specification for structural steel (standard quality) (*fifth revision*).

†Specification for structural steel (ordinary quality) (*second revision*).

‡Specification for mild steel tubes, tubulars and other wrought steel fittings: Part I Mild steel tubes (*fourth revision*).

§Code of procedure for manual metal arc welding of mild steel.

7.1.1 The hand shank ladle may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Definition
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2